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Study Finds 40% More Milk and Millions of Dollars in Revenue Possible for African Farmers Adopting New Drought-Resistant Pasture Grass

New climate-smart varieties survive harsh conditions while reducing the environmental impact of livestock production

26 October 2016, NAIROBI — New varieties of high-quality drought-resistant forage grasses could boost milk production by 40 percent and generate millions of dollars in economic benefits for struggling East African dairy farmers, according to a new analysis by experts at the International Center for Tropical Agriculture.

"Farmers could be benefiting more from surging consumer demand for livestock products in East Africa," said Dr. Steven Prager, a senior scientist at the center, which is known by its Spanish initials CIAT. "Planting these grasses could quickly provide more milk and more money for small-scale dairy producers – if they are grown as part of a wider, sustainable system."

Prager is co-author of the new CIAT study that assessed the benefits that could accrue to East African dairy producers from adopting new varieties of a pasture grass called *brachiaria.* The grasses were developed by CIAT plant breeders to survive harsh growing conditions, while providing considerable nutritional benefits for livestock. The CIAT analysis focused on the additional milk and money they could deliver for an estimated two million small-scale dairy farmers spread across Kenya, Tanzania, Ethiopia, Uganda, Rwanda and Burundi.

High production, lower emissions

The new varieties are high-yielding, nutritious and, because they are easy for cows to digest, animals produce far less methane per kilo of milk produced - a gas that contributes to global warming. The grass has another climate-friendly qualities: its deep roots help it capture carbon and store it in the soil, while also preventing soil erosion. Given its many benefits, *brachiaria* grass has become the most extensively used forage in the world, with seed production already commercialized in big cattle producing countries like Brazil.

"The beauty of these new *brachiaria* grasses is that they allow farmers to boost meat and milk production while actually reducing methane emissions that contribute to global warming," said Dr. Solomon Mwendia, CIAT's forage expert in Nairobi and a co-author of the report. "Right now, many dairy farmers here are spending much of their day collecting wild grasses that do not give animals the nutrition they need - costing them many hours of labor, and resulting in lower resilience on their farm while contributing to a higher greenhouse gas footprint."

Differences in forage and feed quality are a key reason cattle in parts of sub-Saharan Africa contribute relatively more methane per kilo of meat or milk produced than in other parts of the world. Improved forage and feed quality can make digestion more efficient, boosting productivity and reducing harmful greenhouse gas emissions, they say. “Better pasture grass can take our dairy producers from a ‘lose-lose’ to a ‘win-win’ situation; from poor production and high emissions to strong production and low emissions,” said Mwendia.

Bringing *Brachiaria* Grasses Back Home to Africa

Brachiaria grass originally came from Africa, but its performance and nutritional qualities have been improved through decades of work by CIAT’s plant breeders in Colombia. The Centre’s experts are working with public and private sector partners to increase availability for high quality *brachiaria* forage seeds by making them commercially available in Africa, were they are not currently available due to light and temperature requirements.

Dr. Debisi Araba, CIAT’s Director for Africa, said: “If we can establish a commercial industry for high quality *brachiaria* forages here in Africa, this could be a major driver of economic growth, linking smallholder dairy producers, for whom livestock are by far their most valuable asset, with a powerful new technology to enhance production as part of more efficient, sustainable agricultural systems.

“Private sector engagement, and harnessing new opportunities presented by big data – like remote sensing and digital mapping technology to investigate weather patterns and find out where in Africa a commercial forage seed plant for *brachiaria* might be viable - will be essential to drive this *brachiaria* seed market, putting seed into the hands of millions. Just boosting dairy production alone can be a critical first step out of poverty,” he said.

But commercializing forage seeds in Africa will not be without its challenges, he noted. First, new varieties with resilience to local pests and diseases like red mites - not present in Colombia where the hybrids have been bred - will be needed to adapt to local conditions. This will require national testing and field trials in different agro-ecological conditions in each country.

It will also require an awareness drive among farmers about benefits of cultivating forages on farms. “Most farmers have few resources: understandably, they are constantly making trade-offs about what will bring them most income on their farm. They do not perceive that planting pasture grass will do that, and will just take up land better devoted to crops,” he explained. “But there are ways to cultivate pasture grasses without displacing crop production, and the investment in forages can put much more money in their pockets,” he said.

Calls to action:

- New varieties with local pest and disease resilience need to be tested for release.
- An awareness drive is required among farmers about benefits of cultivating forages.
- Private sector engagement and big data need can be harnessed to bring seeds to Africa.

ADD CIAT BOILERPLATE

CREDITS: ILRI-Beca; PIM, L&F, SIDA, CIAT, CGIAR.